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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,497	10/26/2001	Er-Xuan Ping	MTI-31041-A	8624

22202 7590 10/29/2007

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EXAMINER	
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ART UNIT	PAPER NUMBER
2814	

MAIL DATE	DELIVERY MODE
10/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/046,497
Filing Date: October 26, 2001
Appellant(s): PING ET AL.

Kristine M. Strodthoff
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 18 July 2007 appealing from the Office action mailed 14 Mar. 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

US Patent Application Serial No. 10/379494

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

Appellant's brief presents arguments relating to claims 149-155, 170-172, 176-181, 190-193, 196, 198-226, and 232. This issue relates to petitionable subject matter under 37 CFR 1.181 and not to appealable subject matter. See MPEP § 1002 and § 1201.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5483094	Sharma	01-1996
JP 401286361A	Matsumoto	17 Nov. 1989

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 143-144, 147, 167, 169-170, 173, 175, 182-189, 197, 227-231 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP401286361 to Matsumoto.

Regarding claims 143, 173, 182, 186, 197, 227, 229 and 230, Matsumoto discloses a semiconductor structure in fig. 3, comprising at least two overlying faceted layers 4/6 of single crystal epitaxial silicon (ES), each ES layer comprising a faceted surface comprising a plurality of facets, fig. 3, and sidewalls with insulative materials 3 thereover, and an uppermost faceted layer of at least two overlying layers of ES having a layer of an insulative material 5 over the faceted surface of uppermost layer of ES, wherein the structure is situated on a substrate 1 in a vertical orientation; fig. 3 and attached abstract and constitution.

With respect to the "single crystal", Matsumoto uses the SEG (selective epitaxial growth) that is a process that deposit single crystal silicon layers only on the exposed silicon substrate surface within the opening in the dielectric mask. Such definition can be found in Lee (US6228733) in col. 1 lines 20-25. When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent. Or where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 195 USPQ 430, 433 (CCPA 1977) and MPEP 2112.01.

Regarding to claims 144, 147, Matsumoto discloses the semiconductor structure wherein the insulative crystal 5 comprises an oxide.

Regarding claims 167, 169, 175, 183-185, 187-189, Matsumoto discloses the semiconductor structure being a component of a transistor, and being a S/D diffusion region, fig. 1-3.

Regarding to claims 173, Matsumoto discloses a semiconductor structure in fig. 3, comprising at least two overlying faceted layers 4/6 of single crystal epitaxial silicon (ES) including an uppermost faceted layers of single crystal ES 6; each of said faceted layers comprising a faceted top surface comprising a plurality of facets, and insulated sidewalls, and the uppermost faceted layer of ES having an insulated top surface; the structure is situated on a substrate in a vertical orientation, wherein the structure being a component of a transistor, fig. 1-3.

With respect to the "single crystal", Matsumoto uses the SEG (selective epitaxial growth) that is a process that deposit single crystal silicon layers only on the exposed silicon substrate surface within the opening in the dielectric mask. Such definition can be found in Lee (US6228733) in col. 1 lines 20-25. When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent. Or where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 195 USPQ 430, 433 (CCPA 1977) and MPEP 2112.01.

Regarding to claim 231, Matsumoto discloses a semiconductor structure in fig. 3, wherein an uppermost silicon layer 6 comprises conductivity enhancing dopant; see abstract and constitution.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 145-146, 148, 168, and 174, are rejected under 35 U.S.C. 103(a) as being unpatentable over JP401286361 to Matsumoto in view of US 5483094 to Sharma et al.

Regarding claims 145-146 and 148, Matsumoto does not expressly disclose the thickness of the insulative layer comprises silicon nitride having thickness about 5 to 20 nm or 2 to 5 nm.

However, Sharma reference discloses an insulative layer 41/61 comprises silicon oxide and/or silicon nitride, col. 5 line 29-32, has a general thickness in fig. 12. Accordingly, it would have been obvious to one of ordinary skill in art to use the silicon nitride teaching Sharma in Matsumoto device in the range as claimed, because it has been held that where the general conditions of the claims are discloses in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. See In re Aller, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955), and also because such material substitution would have been considered a mere substitution of art-recognized equivalent values, MPEP 2144.06.

Regarding claims 168 and 174, Matsumoto does not disclose the semiconductor structure being a transistor gate.

A recitation of 'being a transistor gate' of the claimed invention does not result in a structural difference between the claimed invention and the prior art, thus claimed invention is only an art recognized suitability for an intended purpose, MPEP 2144.07. Matsumoto structure is capable of being a transistor gate.

(10) Response to Argument

a. With respect to claims 143-144, 147, 167, 169, 173, 175, 182-189, 197 and 227-231, the Appellant argues that Matsumoto discloses a single SEG layer – layer 4 and boron implantation forms a doped uniform base region 6 to a depth. Region 6 is not a second SEG layer. It is a depth of SEG layer 4 that is doped after layer 4 is formed; thus it is incorrectly interpreted as a second SEG layer. This is not persuasive because the Examiner submits that the depth region 6 constitutes a distinguisable junction between the doped SEG layer and undoped SEG layer as depicted by the separating line in fig. 3(b). Thus, Matsumoto is clearly discloses multiple SEG layers, i.e. layer 4 and 6. In addition, during examination proceedings, claims are given their broadest reasonable interpretation and a claim must be read in accordance with the percepts of English grammar and words should be given their plain, ordinary meaning. In re Hyatt, 708 F2d 712, 218 USPQ 195 (Fed. Cir. 1983). In this case, the definition of "layer" being interpreted by the Examiner as "is a single thickness of something that lies over or under something"; thus, the interpretation of layers 4 and 6 would read on the claimed limitation.

b. With respect to claims 145-146, 148, 168 and 174, please see the discussions stated above. Therefore the combination of Matsumoto and Sharma would read on the claimed limitation.

c. With respect to claim 149-155, 170-172, 176-181, 190-193, 196, 198-226 and 232, the restriction requirement is not an appealable matter, it is rather a petitionable matter, see 37 CFR 1.181(f) 37 CFR 1.144 and MPEP § 1002 and § 1201.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Thao X. Le
23 Oct. 2007 TL

Conferees:

Mr. Ricky Mack, SPE RM

Mr. Wael Fahmy, SPE W.F